

Women's Educational Attainment and the Transition to First Marriage in Three East
Asian Countries
Guilherme Kenji Chihaya
Umeå University

Author Note

Department of Geography and Economic History, Umeå University,
g.chihaya@geography.umu.se.

Abstract

This study compares the effect of education on marriage rates in Taiwan, Japan, and South Korea. Theories explaining cross-country variation in the effect of women's earning potential on marriage claim that negative effects happen when gender-role differentiation forces women to choose between career and family. I hypothesise that Taiwan will have less negative impact of women's earning potential, measured as years of schooling, on marriage. Compared to Japanese and Korean, Taiwanese enterprises are small-scale and function under higher labour demand, what forces them to accommodate married women in the workplace. This reduces the opportunity costs of marriage for educated women because they do not need to interrupt their careers. Unexpectedly, I find that in Taiwan the effect of education is negative and stronger than in Japan and South Korea. Besides not supporting existing theories, this finding calls for alternative explanations to variation in the relationship between marriage and economic potential.

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Introduction and Background

This study compares the effect of education on marriage rates in Taiwan, Japan, and South Korea. I hypothesise that the lower gender-role differentiation in Taiwan will lead to a smaller negative impact of women's earning potential, measured as years of schooling, on entry into first marriage.

Blossfeld (1995) claims that the effect of earning potential on marriage varies by country, being negative when gender role differentiation forces women to choose between family and career. Clear negative effects of earning potential on marriage have only been reported for Japan (Ono, 2003) and Italy (Pinnelli & de Rose, 1995), while studies of other countries report no effect or even positive effects (Blossfeld & Huinink, 1991; Bracher & Santow, 1998; Oppenheimer, Blossfeld, & Wackerow, 1995; Santow & Bracher, 1994; Sweeney, 2002).

This is heralded as support for Blossfeld's claim (Ono, 2003), but three problems keep us from drawing such conclusion. First, the measures of earning potential vary greatly in the literature, and so do the results. For example, studies on Japan find substantial negative effects for income (Ono, 2003), weak negative effects for education (Raymo, 2003) and positive effects for composite measures of earnings potential (Fukuda, 2013). Second, the countries compared in previous studies differ largely in both cultural norms, labour market practices, and, possibly, marriage markets. This makes it hard to argue that differences in effects of a measure of earning potential are due to differences in the degree of gender-role differentiation relevant to women's careers. Lastly, some previous cross-national studies (e.g. Ono, 2003) face methodological problems comparing coefficients of discrete-time event history models because of biases induced by differences in residual variation across countries (Allison, 1999).

This study contributes to the literature by comparing Japan, South Korea and

Taiwan, which all have gendered role norms and policies but different workplace dynamics (Brinton, 2001). My choice of countries allows us to factor out large differences in cultural norms and concentrate on labour market arrangements that produce gender-role differentiation. Moreover, I provide comparative results for these three countries, using data collected through standardised surveys with comparable samples from the same historical period. Lastly, I minimise the problem of differences in unobserved variation by using heterogeneous choice models (Williams, 2009).

Taiwanese educational and industrial policies resulted in higher labour demand than in Japan and South Korea, forcing employers to hire more women (Brinton, 2001), and reducing the gender wage gap (Kao, Polachek, & Wunnava, 1994). Taiwan's predominantly small-scale enterprises better accommodated married women to avoid labour turnover (Brinton, 2001). Moreover, the need for supplemental income – due to lower wages for both genders – made Taiwanese wives more likely to continue working (Yu, 2009).

On the other hand, Japan and South Korea followed a model centred on larger firms in an environment of lower labour demand than in Taiwan. These firms had less incentives to accommodate married women and employers expected women to quit upon marriage (Brinton, 2001; Lee & Hirata, 2001; Yu, 2009)

Therefore, theories based on gender-role differentiation would predict no negative effect of education on marriage in Taiwan, because there family formation is less likely to cause career interruption for women (Brinton, Lee, & Parish, 1995; Yu, 2005). In the same way, Japan and South Korea should show negative effects of education because workplace dynamics there lead women to quit work upon marriage (Lee & Hirata, 2001).

Data and Method

Data for this study comes from the East Asian Social Survey 2006, which had information on respondent's education and time of first marriage. I exclude respondents who were born before 1945, because mortality in older cohorts may cause bias.

Discrete-time event history analysis is appropriate for this case because the finest

time unit in the data is the person-year. Nevertheless, all specifications of discrete-time models (logit, probit, and clog-log) estimate coefficients that depend on the residual variation, what complicates comparisons of effects between groups, both using separate models and using interaction terms (Allison, 1999). Previous comparative studies (e.g. Ono, 2003) suffer from this problem. Furthermore, conclusions drawn from comparing different studies that use discrete-time models are also affected for the same reasons.

I use heterogeneous choice models, which control for the scaling factor of the unobserved variation for each group being compared and produce better estimates of the differences in coefficients (Williams, 2009).

The equations include (a) education measured in years (b) school enrolment (c) birth cohort (d) father's education (e) number of siblings (f) rural residence during most of early life and (g) linear and quadratic terms for age at each person year. Interactions between education and age were tested to account for non-proportional hazards but, besides not significantly improving model fit, they showed similar patterns as the ones presented here.

Results and Conclusions

The last two columns of table 1 show the results of heterogeneous choice models controlling for residual variation by country. Model HCM1 constrains the effect of education to be the same for the three countries. This model predicts that a one-year increase in schooling reduces the odds a women will marry by 8.66%.

Model HCM2, however, allows the effect of education to vary by country. This second model fits better the data both by AIC, BIC and the likelihood ratio test – it has a difference of 30.17 in log likelihood, statistically significant at $P < 0.001$ with two degrees of freedom.

According to model HCM2, a one year increase in education for Taiwanese women reduces their odds of marriage by 13.33%. The reduction in odds of marriage is smaller in Japan, at 5.18%, and even smaller in South Korea, at 2.38%.

Table 1

Discrete-time Logistic and Heterogeneous Choice Models of First Marriage with Years of Schooling as the Independent Variable

	Taiwan	Japan	South Korea	HCM1	HCM2
Age	1.25 (0.10)***	1.39 (0.13)***	1.74 (0.16)***	1.32 (0.09)***	1.26 (0.08)***
Age ²	-0.02 (0.00)***	-0.02 (0.00)***	-0.03 (0.00)***	-0.02 (0.00)***	-0.02 (0.00)***
1950-59	-0.05 (0.15)	-0.04 (0.14)	-0.20 (0.20)	-0.06 (0.09)	-0.09 (0.08)
1960-69	-0.04 (0.17)	-0.40 (0.16)*	-0.07 (0.20)	-0.13 (0.09)	-0.16 (0.08)
1970-79	-0.30 (0.19)	-0.73 (0.17)***	-0.67 (0.22)**	-0.48 (0.10)***	-0.50 (0.10)***
1980-89	-1.60 (0.40)***	-1.64 (0.44)***	-1.97 (0.55)***	-1.66 (0.25)***	-1.56 (0.24)***
Rural upbringing	0.20 (0.10)*	0.15 (0.18)	0.09 (0.12)	0.11 (0.06)	0.12 (0.06)*
Number of siblings	0.04 (0.03)	0.05 (0.04)	0.03 (0.03)	0.04 (0.02)*	0.03 (0.02)
Father's education	-0.03 (0.01)**	-0.01 (0.02)	0.00 (0.01)	-0.01 (0.01)	-0.01 (0.01)*
Enrolled at school	-2.10 (0.37)***	-1.30 (0.29)***	-2.13 (0.47)***	-1.77 (0.21)***	-1.58 (0.20)***
Education	-0.12 (0.02)***	-0.03 (0.03)	-0.07 (0.02)**	-0.09 (0.01)***	-0.14 (0.01)***
Japan				0.07 (0.19)	-0.88 (0.41)*
South Korea				0.47 (0.13)***	-0.71 (0.21)***
$\ln(\sigma)$ Japan				0.07 (0.08)	0.01 (0.08)
$\ln(\sigma)$ South Korea				-0.23 (0.08)**	-0.39 (0.08)***
Education x Japan					0.09 (0.03)**
Education x South Korea					0.12 (0.02)***
-2 log likelihood	-1722.44	-1425.08	-1437.24	-4631.93	-4601.76
df	12	12	12	16	18
n, respondents	825	602	692	2119	2119
n, person-years	8265	6334	7190	21789	21789
AIC	3468.88	2874.17	2898.47	9295.86	9239.52
BIC	3553.12	2955.21	2981.04	9423.69	9383.33

*** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$

The results are the exact opposite of what Blossfeld's theory predicts. The negative effect of education is weaker in Japan and South Korea, which have more gendered labour market dynamics, and stronger in Taiwan, which has more equal labour market dynamics. This implies that there are other moderating factors beyond gender-role differentiation.

It is possible that women in Taiwan face stronger marriage market mismatches (Raymo & Iwasawa, 2005) than in Japan, given that educational expansion there was not as pervasive as in Japan and South Korea (Brinton, 2001). Another possibility is that more educated women in Taiwan tend to work for large companies, possibly foreign owned, and are subject to workplace dynamics more similar to those in Japan and South Korea. However, these hypotheses could not be tested with the data at hand.

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